

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of claims:

1. – 11. (Cancelled)

12. (Currently Amended) A method for classifying connections detected between senders and receivers [[in]] belonging to a communication network[[s]], said senders and receivers using communication protocols, each communication protocol designated by a user protocol name, said method being performed and operated by means of a computing system-and-including, operated by said computing system, the method comprising:

recognizing determinant information on the protocol designated by said name,
from among information conveyed in a detected connection, by a protocol self-identifier mechanism associated with each implicit and explicit used protocol name and devised to recognize said determinant information;
establishing a non-empty or empty list of potentially used protocol names referred to as a list of son protocol names, with said non-empty or empty list of son protocol names being associated with one of each said used protocol names, the protocol name so associated with the list of son protocol names being referred to as father protocol name; and

for each detected connection, by a computing kernel operated by said computing system; constructing and thus associating to each detected connection a first data structure devised so as to contain an ordered sequence of used protocol names which is initialized with a so-called base protocol name, said first data structure being devised by;

~~constructing said first data structure by searching, throughout~~
said list of son protocol names associated with the last name of said ordered sequence,

by discriminating between implicit and explicit son protocol name, for a son protocol name for which said associated self-identifier mechanism recognizes determinant information from among said conveyed information and then

by appending to the end of said ordered sequence said son protocol name when it is found and ~~by starting~~ repeating the search again otherwise, so long as it is possible to find in said list of son protocol names which is associated with the last name of said ordered sequence, a son protocol name for which said associated self-identifier mechanism recognizes determinant information from among said conveyed information; and declaring said detected connection as being classified when it is no longer possible to find, in said list of son protocol names associated with the last name of said ordered sequence, a son protocol name for which said associated self-identifier mechanism recognizes determinant information from among said conveyed information.

13. (Previously Presented) The method of claim 12, wherein said searching for an implicit son protocol name includes submitting by means of said computing kernel said conveyed information to each self-identifier mechanism associated with a name from said list of son protocol names until one of said self-identifier mechanism declares recognition of determinant information or until no self-identifier mechanism can declare recognition of determinant information.

14. (Previously Presented) The method of claim 12, wherein said searching for an explicit son protocol name includes submitting by means of said computing kernel said conveyed information to the self-identifier mechanism associated with the last name of said ordered sequence, so as to allow said self-identifier mechanism to find said son protocol name among the determinant information of said father protocol.

15. (Currently Amended) The method of claim 12, including establishing a current signature for each detected connection by said computing kernel, by:

submitting all or part ~~[[or]]~~ of said conveyed information to at least one self-identifier mechanism associated with one of the names of low rank in said ordered sequence;
finding among the determinant information source and destination indicators by using said self-identifier mechanism; and
incorporating said source and destination indicators into said current signature.

16. (Currently Amended) The method ~~[[or]]~~ of claim 15, including cataloguing each first data structure in a first table by said computing kernel by establishing a first associative correspondence between each first data structure and the current signature established for the associated connection.

17. (Previously Presented) The method of claim 16, further including establishing by said computing kernel in said first table a second associative correspondence between each current signature and a peer signature whose source indicators are the indicators of destination of the current signature and whose destination indicators are the source indicators of the current signature.

18. (Currently Amended) The method of claim 16, further including, operated by said computing kernel the steps of:

gathering, from ~~[[in]]~~ data packets passing through said computing system within connections to be detected, the ~~useful~~ determinant information conveyed so as to formulate a signature and thus the current signature whenever the useful information conveyed is sufficient;
using said current signature thus formulated in real time to detect a connection, by searching in said first table for the first data structure which corresponds to

said current signature, associating a new first data structure with said detected connection when there exists no first data structure which corresponds to said current signature, [[by]] starting or continuing to construct said first data structure when there exists a first data structure which corresponds to said current signature, and [[by]] gathering from [[in]] the data packets the useful information conveyed so as to construct said first data structure.

19. (Currently Amended) The method of claim 18, further including when the ~~useful~~ determinant information gathered from [[in]] a data packet is not sufficient to formulate a signature, operated by said computing kernel the steps of:

cataloguing the ~~useful~~ determinant information in a second table by establishing an associative correspondence between the useful information which thus comprises links or memberships to one and the same connection, until said ~~useful~~ determinant information is sufficient to formulate said current signature.

20. (Currently Amended) The method of claim 12, further including operated by said computing kernel the steps of:

- reading the used protocol names of said ordered sequence in the data structure the computing kernel is building up, so as to detect each dynamic connection protocol name; and,

- for each dynamic connection protocol name detected[[;]], submitting the information conveyed to the self-identifier mechanism associated with the name detected so as to determine whether there exists a subsequent dynamic connection; and,

- if a subsequent connection exists[[;]], associating therewith a second data structure devised so as to contain an ordered sequence of potential protocol names which begins with said so-called base protocol name.

21. (Currently Amended) The method of claim 20 further including, operated by said computing kernel, the steps of cataloguing each second data structure in a second table by establishing an associative correspondence between each second data structure and a potential signature formulated by said self-identifier mechanism associated with the name detected.

22. (Currently Amended) The method of claim 21, further including operated by said computing kernel the steps of:

- searching for the ordered sequences of potential protocol names in which the ordered sequence of used protocol names is included; and, when there exists an ordered sequence of potential protocol names whose potential signature corresponds to said current signature;

- completing said first data structure by means of said second data structure.